REMARKS

Claims 1 to 16 are pending. Of these claims, claims 1, 4, and 15 are independent.

Independent claims 1 and 15 have been rejected under 35 USC 103 as obvious in view of US Patent No. 6,744,727 to Liu et al (hereinafter "Liu").

The applicants respectfully disagree.

As required by MPEP §2142,

"To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. **Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations**. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). See MPEP § 2143 - § 2143.03 for decisions pertinent to each of these criteria." **[EMPHASIS ADDED]**

Claim 1 reads:

"At a first node within a mesh network, a method of combining first and second protection paths between said first node and a second node, wherein said first and second protection paths comprise first and second protection channels, respectively, said method comprising:

assessing if said first and second protection paths may be combined;

releasing said first protection channel, and replacing said first

protection channel with said second protection channel along said first protection path if said first protection path may be combined with said second protection path."

Claim 15 is similarly directed to a network node, that is so operable.

Claims 1 and 15 thus require:

1. two protection paths passing between a <u>first node</u> and a <u>second node</u>;
2. the existence of first and second protection channels on the paths, between the <u>first node</u> and the <u>second node</u>; and
3. the release of the first protection channel, and its replacement with the second protection channel <u>at the first node</u>.

By contrast Liu discloses a network centric technique for determining backup path routing resource provisioning. This is for example evident from a review of column 4, lines 55 *et seq.*,

> "The present invention offers a method for deriving a backup path routing resource provisioning template for a network. The method is feasible, scalable, adaptive, much faster, and near global optimal in redundancy reduction. The method includes determining a working path for each traffic flow in the network, aggregating the working paths into a first matrix, determining a backup path for each traffic flow, aggregating the backup paths into a second matrix, and deriving the <u>resource provisioning template</u> from the first and second matrices." **[EMPHASIS ADDED]**

Entries of a spare provision matrix (C) may be used to determine a minimum spare capacity required for one of a plurality of links in a network.

The technique of Liu appears to be suited for network design, and may be performed at a computing device designed to calculate overall network provisioning.

Link capacities are calculated *a priori*, and the network is configured to reflect those capacities. As noted by the Examiner, and by Liu at column 11, lines 40 *et seq.*,

> "A problem facing <u>network designers</u> utilizing path restoration is determining the amount of spare capacity and placement of the link-disjoint backup paths necessary to implement the path restoration plan. <u>Network designers</u> use the information within the FMTs as a way to determine a path-link integer programming model for the spare capacity allocation problem of the network." **[EMPHASIS ADDED]**

Further, Liu appears to calculate a per link required capacity, as detailed at column 13, line 18 et seq. As noted, the spare capacity to be reserved on each link si "is the maximum of the spare capacity required in <u>all</u> failure scenarios." [column 13, lines 26-29]

By contrast, the invention as claimed in claims 1 and 15 proceeds by combining existing first and second protection channels at a node, in the presence of already existing network paths, and seeks to reduce protection path allocation. As claimed, a first existing protection channel must be released, and replaced with a second protection channel.

This presents numerous advantages over the approach of Liu. Specifically, existing protocols (MPLS, LDP, LDP(CR-LDP), etc.) may be used to establish working and protection paths. Moreover, no complex calculation of overall network configuration is required.

Although Liu is generally concerned with a similar problem as the present invention – improving network configuration - Liu's approach is simply different than the claimed approach: Liu's approach is network-centric, and does not rely on combining/releasing protection channels. Claim limitations of claims 1 and 15, are thus simply not found in this reference. Any suggestion that a person of ordinary skill would be led to modify the disclosure of Liu, based on the general similarity of the problem addressed by Liu is simply insufficient to establish a *prima facie* case of obviousness, as

required under 35 USC 103. Withdrawal of the rejection of claim 1 and 15 under 35 U.S.C. 103 in view of Liu is therefore respectfully requested.

Claims 1 and 15 have been further rejected under 35 USC 103 as obvious in view of US Patent No. 6,658,457 to Nishikawa (hereinafter "Nishikawa").

Again, the applicants respectfully disagree.

As noted by the Examiner, Nishikawa does not relate to a mesh network. Instead, Nishikawa discloses multiplexing and de-multiplexing datastreams, and allocating paths to carry the datastreams. The Examiner broadly asserts that "It is noted that the deconstruction process would cover releasing the first protection channel and replacing it with a second one." This assertion is unclear, and does not appear to be supported by Nishikawa.

Specifically, careful review of Nishikawa simply discloses multiplexing and de-multiplexing datastreams (e.g. Da, Db, Dc, Dd) on existing paths (e.g. P1, P2) and placing the multiplexed/demultiplexed datastreams on newly constructed paths.

The claim language of claims 1 and 15 of the present application calls for

> "combining first and second protection paths between said first node and a second node, wherein said first and second protection paths comprise first and second protection channels, respectively, said method comprising: assessing if said first and second protection paths may be combined; releasing said first protection channel, and replacing said first protection channel with said second protection channel "

Now, although, the Examiner's rejection fails to identify which elements of Nishikawa he considers to be equivalent to the claimed channels or paths, any reading of Nishikawa, it is submitted, fails to disclose channels and paths as claimed:

Firstly, Nishikawa discloses multiplexing datastreams on ingress paths between a path aggregation unit 1 and an <u>upstream</u> node, to form resulting multiplexed/demultiplexed datastream(s) on a path to a <u>downstream</u> node. As claimed, first and second protection channels are and remain between first and second nodes.

Secondly, as claimed, a first protection channel must be released, and the first protection channel must be replaced with an existing second protection channel. In Nishikawa no datastream or path is released and replaced with an already existing second datastream or path. That is, datastream Da is not released and replaced with Db, Dc or Dd. Likewise Db, Dc, or Dd are not released and replaced. Similarly, path P1, P2, etc. is not released and replaced with either P2 or P1. This is evident from the figures of Nishikawa - for example, FIG. 5 of Nishikawa illustrates arrival of data streams DcDa and DdDb on protection paths P1 and P2 from an upstream node, at path aggregation unit 14d-2, and creation of a path carrying DdDcDbDa to a downstream node. Neither P1 or P2 exits path aggregation unit 14-d2, and none of Dd, Dc, Db, Da are released. Similarly, in FIG. 8 multiplexed data streams DdDcDbDa on an unnamed path are demultiplexed at path selector 14a to form DcDbDA and Dd, carried on paths P1 and P4. Again the unnamed incoming path does not exit the node, and none of Dd,Dc,Db or Da are release and replaced. In FIG. 7 incoming path P1 is released in favour of <u>newly allocated</u> outgoing path P3; Da is not released (see column 7, lines 59-63).

Thus, clearly, Nishikawa fails to disclose combining first and second protection paths between a first node and a second node, wherein the first and second protection paths comprise first and second protection channels, respectively, by assessing if the first and second protection paths may be combined; and releasing the first protection channel, and replacing said first protection channel with the second protection channel, as claimed in claims 1 and 15.

Any broad assertion that a person of ordinary skill would be led to modify the disclosure of Nishikawa, to arrive at these claim limitation is simply insufficient to establish a *prima facie* case of obviousness, as required under 35 USC 103. Withdrawal of the rejection of claim 1 and 15 in view of Nishikawa is therefore respectfully requested.

Independent claim 4 has been rejected under 35 USC 103 as obvious in view of Liu and U.S. Patent No. 6,850,997 to Rooney et al. (hereinafter "Rooney) and as obvious in view of Nishikawa and Rooney.

Once again, the applicants respectfully disagree.

Claim 4 requires,

"determining if a protection channel along a first protection path protecting a first working path, already exists between said first node and said second node; b. if said first working path and said second working path do not share a common points of failure, assigning said existing protection channel to said second path."

As noted above, Liu simply fails to disclose assigning existing protection channels to protection paths. Instead, Liu adopts a network centric approach: overall network configuration parameters are calculated and channels are established.

As also set out above, Nishikawa similarly simply fails to disclose assigning an existing protection channel to a second protection path.

Rooney does little to address the deficiencies of Liu or Nishikawa, and similarly fails to disclose assigning an existing protection channel along a first protection path protecting a first working path to an existing second protection path.

The art of record thus fails to disclose all of the limitation of claim 4. Thus, any bald assertion that a person of ordinary skill would be led to modify the disclosure of Liu and/or Rooney, or Nishikawa and/or Rooney to assign existing protection channels to an existing second protection path, as claimed in claim 4, is simply insufficient to establish a *prima facie* case of obviousness, as required, under 35 USC 103. Withdrawal of the rejection of claim 4 in view of Liu and Rooney is therefore respectfully requested.
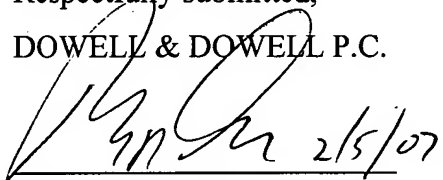
In view of the foregoing, it is believed that independent claims 1, 4 and 15 are in condition for allowance. Allowance of these claims, and claims 2-3, 5-14, 16 dependent thereon is respectfully requested.

No new matter has been added by this amendment.

It is believed that the application is now in condition for allowance. Favourable reconsideration and allowance of the application are earnestly solicited.

Respectfully submitted,
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By: _____ 2/5/07

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